

OBSTRUCTIONS TO NAVIGATION AT HELL GATE, IN THE
EAST RIVER.

PROCEEDINGS

OF THE

CHAMBER OF COMMERCE OF THE CITY OF NEW YORK,

IN RELATION TO

The removal of obstructions to the navigation at Hell Gate, in the East river, accompanied by a letter from the Superintendent of the Coast Survey, transmitting a chart of Hell Gate, with a report from Lieutenant Commanding C. H. Davis, United States navy.

MARCH 14, 1848.

Referred to the Committee on Naval Affairs, and ordered to be printed.

CHAMBER OF COMMERCE,
New York, March 7, 1848.

At a regular meeting of the chamber of commerce, held this day, the following report from a special committee was presented, adopted, and ordered to be transmitted to the chairman of the Committee on Naval Affairs of the United States House of Representatives :

The committee appointed on the subject of applying to Congress for an appropriation to remove the obstructions to navigation at Hell Gate, in East river, report, that as they wanted all the facts before them before reporting to the chamber, they applied to the superintendent of the United States coast survey for a plan of the Gate and vicinity, who promptly directed an officer to re-examine the ground and furnish a plan, which has been done, and is now before the chamber, with a report for its adoption. The committee recommend the adoption of the following resolutions :

Resolved, That the plan of improvement of Hell Gate, as recommended by Lieutenant Charles H. Davis, of the United States coast survey, in the accompanying letter, is not only full and minute, but, in the opinion of this chamber, will materially diminish the dangers of the navigation of Hell Gate, and that it is due to the immense commerce on this route that immediate action should be taken to carry out this purpose.

Resolved, That this report be sent to the Committee on Naval Affairs of the House of Representatives, asking that the subject may be early acted on by the present Congress.

Resolved, That the thanks of this chamber be presented to Professor

Bache, superintendent, and to Lieutenant C. H. Davis, assistant, United States coast survey, for the promptitude and intelligence with which they have carried out the wishes of this chamber.

SCHUYLER LIVINGSTON,
HENRY DELAFIELD,
GEORGE W. BLUNT, } *Committee.*

Extract, from the minutes.—Attest:

M. H. GRINNELL, *President.*

PROSPER M. WETMORE, *Secretary.*

COAST SURVEY OFFICE,
Washington, February 29, 1848.

DEAR SIR: I have the honor to transmit herewith, under the authority of the Treasury Department, a chart of Hell Gate from the archives of the coast survey, with a report from Lieut. Com. Charles H. Davis, United States navy, assistant in the coast survey, to whom I committed an examination of the locality in question, with especial reference to the requirements of the chamber of commerce.

The materials thus communicated may, I trust, prove useful in the interesting matter referred to your committee by the chamber.

Very respectfully, yours,

A. D. BACHE,
Superintendent U. S. Coast Survey.

SCHUYLER LIVINGSTON, Esq.,
Chairman of Committee, Chamber of Commerce, New York.

OFFICE OF THE COAST SURVEY,
Washington, February 15, 1848.

DEAR SIR: In compliance with your instructions, I have made an examination of the Hell Gate passage, for the purpose of verifying, as far as the season and short time would allow, the records of this office, and of inquiring into the best means of improving this important channel.

That it is very desirable to make such improvements as will lessen or altogether remove the hazard attending the ordinary navigation of Hell Gate, will not be disputed when it is remembered that a very large proportion of the vast fleet of coasting vessels that go to New York and up the North river pass by this route, and that it is the hourly resort of steamboats crowded with passengers and carrying the most precious freight.

Of the sailing vessels that enter the Hell Gate passage, it is estimated that one in fifty sustains more or less injury by being forced by the violence of the currents on the rocks or shoals; and the accident to the Oregon, which nearly proved fatal to her passengers, shows that even steamboats, with a motive power that keeps them under perfect control, and guided by the most experienced pilots, are not secure from peril.

Such an improvement in the channels of Hell Gate as would render them navigable to vessels of all classes under common circumstances,

would supply to the commerce of New York a new outlet to the sea—one in a different direction from the harbor channels, and available when those were temporarily closed by adverse winds or other causes—and would therefore be a permanent and valuable resource both for those vessels outward bound and for those returning home.

But a still more serious consideration is that of the increased facilities for naval defence which this improvement would afford. In the event of a rupture with a naval power, there can be no doubt that the attempt of last war to ravage the shores of Long Island sound, and to prey upon its domestic commerce, will be repeated. The means of resisting or preventing such hostilities must be drawn chiefly from New York; and if the Hell Gate passage be made secure, not only our largest men-of-war, but our steamboats of a superior class, which on such an occasion would be armed for the purpose of defence, would be at once enabled to hasten to the scene of danger.

The steamboats are now constantly passing through Hell Gate; but the difficulties of the passage would to them be seriously increased if they were pressed down by a naval armament and equipped for action.

During the war with Great Britain our frigates were blockaded in the harbor of New York, which would not have been the case if the Hell Gate passage had been open. Commodore Decatur ventured to carry his squadron through, but with such risk that the attempt with a frigate was only made once afterwards, notwithstanding the constantly recurring necessity.

The removal, therefore, of the obstructions to the safe navigation of Hell Gate, is recommended by a regard to the future naval defences of the country.

The dangers in this channel arise from the great strength of the currents and the number and positions of the rocks and reefs. The strength of the current is such that sailing vessels can only stem its force or escape from it by a commanding breeze; but as the main course of the flood-tide keeps the middle of the eastern channel, it is most secure for vessels which are coming from the westward, with the tide, to place themselves in the centre of the stream, and follow its direction. They are thus carried through in safety. This plan, however, is inadmissible for any but small vessels, on account of two rocks, the Pot and the Frying Pan, which lie in or very near the mid-channel, are in the way both going to the eastward and westward, and have but little water on them at low tide. There is also a reef called Way's reef, which lies in the course followed by the steamboats principally, when coming from the eastward against a strong flood. It is their custom to keep close round Pot cove, and run up under Hallet's point, by which they avoid the strength of the flood. In this part they find an eddy current in their favor.

But on the ebb the greatest danger arises from the divergence of the current at a point marked A on the sketch, where the ebb tide branches off into three directions, to take the course of the three channels, the main south channel, the middle channel, and the eastern channel.

The safe navigation depends here upon deciding sufficiently soon at the point of separation which channel shall be taken; and the neglect to do this, or a loss of control over the vessel for any reason, frequently results in being carried on the Gridiron.

When a vessel that has attempted the eastern channel finds herself car-

ried towards the Gridiron, her only chance for safety is to run for the middle channel, which is narrow, and made precarious by the middle reef, the outer rock of which is the Negro Head.

The Gridiron is, owing to the strong set of tide on it, the most dangerous reef in the passage.

The reef known as the Bread and Cheese, on the eastern end of Blackwell's island, is also very dangerous. Vessels are liable to go on it on the flood, when it is covered, by getting into the eddy near it, with a light wind. The chief danger is on the ebb, and from the same cause as that which makes the Gridiron dangerous, i. e. the strong set of the tide in that direction.

These, then, are the principal dangers, and I recommend that the following measures be adopted for their removal and correction :

1st. That Pot rock, the Frying Pan, and Way's reef, be blasted and scattered. The two former are single rocks of a pointed shape ; the latter is long, and has the character of a ledge. (The rocks having deep water around them, could be easily removed.) And also that the middle reef be blasted, so as to make a clear channel of sufficient depth for common vessels and steamboats between Flood and Little Mill rocks.

2d. That piers be built upon the "Hog's Back," "Gridiron," and the "Bread and Cheese," of stone, sufficiently high to show above the surface of the water at high tide at least four feet. That these piers be faced with wood, and be provided with the spring fenders used at the steamboat ferries, and that their forms should correspond to the natural shape of the reef, by which means vessels coming in contact with them would be guided into the channel ways.

To blow up and scatter the large mass of rock composing the Gridiron, without destroying the middle channel, which has only twenty-two feet of water in it at that point, would hardly be possible. But if the Gridiron were removed, the rock out of water (that is, Flood rock) would be equally or nearly as dangerous. The tide would set on that with the same violence and certainty.

The same objections will apply to an attempt to remove the "Bread and Cheese." And in regard to this and the Hog's Back, the shoal water around them would make it necessary to repeat the blasting an indefinite number of times.

Something has been said of removing and scattering all the rocks in Hell Gate, those out of water as well as those under water ; but it appears to me that this proposition is best answered by asking where the materials are to go ? Unless carried off, they must obstruct the neighboring channels, and the process of blasting would never be completed.

By the piers which I propose, the directions of the currents would be made more certain and confined, and where they pass over deep water they may be safely trusted. Tides would rebound from the piers, and in most instances prevent vessels from striking against them. And again, if vessels were carried on, they would be prevented from receiving any injury by the spring fenders, and would have an opportunity, by throwing a line around a pile, either to swing the vessel or to lie by, as might be most convenient.

There are several single rocks, less important and near the shore, which might be easily removed: one, for instance, off Negro point, and one near the South ferry.

Until this passage is improved by the removal of the present serious impediments to its safe navigation, I recommend that the following buoys be placed:

One on Way's reef. I have already mentioned that steamboats coming from the eastward, on the flood, pass inside of Way's reef, where an eddy tide is found setting towards Hallet's point. This eddy, produced by the whirls of the Pot, rebounds from the shore, and sets on to Way's reef, where it is met by one of the *direct* whirls of the Pot. By this conflict of tides, two straight currents are produced, that run side by side over the reef; the outer one southerly or flood, the inner one northerly or counter to the direction of the main body of the tide.

One on "Hog's Back." Vessels intending to take the main ship channel on the ebb (which is the best way) are in danger, if they give "Hog's Back" too wide a berth, of going on "Mill reef," or of being forced to run the middle channel, which is only safe to those who are very well acquainted with the ground. A buoy would enable a vessel to keep near "Hog's Back," and avoid this danger.

One on "Rylander's reef." This reef is dangerously situated, on account of the deep water around it, and is not well known.

I will also recommend a small light on "Great Mill rock," which will enable vessels to pass through Hell Gate at night. It would be the proper guide for hauling round Negro point, coming from the eastward, and for hauling to the southward coming from the westward, after passing "Hallet's point."

The character of the rocks in Hell Gate is such that they could be easily removed by blasting. The strata lie chiefly in a horizontal direction, and are open. This opinion is formed from the appearance of the rocks above water.

I have the honor, &c., &c.,

CHARLES HENRY DAVIS,

Lieut. Commanding, U. S. N., Assistant Coast Survey.

A. D. BACHE, LL. D.,

Superintendent U. S. Coast Survey, Washington.

